

Claims

What is claimed is:

1. A method of processing a signal for transmission in a wireless communication system, the method comprising the steps of:

5 encoding the signal in a multiple description coder which generates a plurality of different descriptions of a given portion of the signal;

arranging the different descriptions of the given portion of the signal into packets such that at least a first description of the given portion is placed in a first packet and a second description of the given portion is placed in a second packet; and

10 transmitting each of the packets using a frequency hopping modulator, wherein a hopping rate of the modulator is configured based at least in part on a number of descriptions generated for each of a plurality of different portions of the signal.

15 2. The method of claim 1 wherein the multiple description coder comprises a multiple description coder configured to implement multiple description scalar quantization (MDSQ).

3. The method of claim 1 wherein the multiple description coder comprises a multiple description adaptive differential pulse code modulation (ADPCM) coder.

20 ~~4. The method of claim 1 wherein each of the portions of the signal correspond to a designated segment of the signal having a particular time duration.~~

5. The method of claim 1 wherein the signal comprises a speech signal.

25 6. The method of claim 1 wherein the wireless communication system comprises a cordless telephone system.

7. The method of claim 1 wherein the frequency hopping modulator is configured such that each of the packets is transmitted using a different frequency.

8. The method of claim 1 wherein the hopping rate of the frequency hopping modulator is selected as twice a frequency hopping rate of the modulator used for transmission of a single description of the given portion of the signal.

5           9. The method of claim 1 wherein a packet size for the first and second packets is selected as one-half a packet size used for transmission of a single description of the given portion of the signal.

10           10. The method of claim 1 wherein the encoding step generates two descriptions for each of a plurality of different portions of the signal, with a first one of the descriptions for a current one of the portions of the signal being placed in a current packet along with a second one of the descriptions for a previous portion of the signal.

15           11. The method of claim 1 wherein the hopping rate of the frequency hopping modulator is selected such that a transmission delay of the system is not increased as a result of the transmission of the plurality of descriptions relative to a transmission delay of the system for single description transmission.

20           12. An apparatus for processing a signal for transmission in a wireless communication system, the apparatus comprising:

                  a multiple description coder operative to generate a plurality of different descriptions of a given portion of the signal, the different descriptions of the given portion of the signal being arranged into packets such that at least a first description of the given portion is placed in a first packet and a second description of the given portion is placed in a second packet; and

25                   a frequency hopping modulator having an input coupled to an output of the multiple description coder and operative to configure the packets for transmission, wherein a hopping rate of the modulator is configured based at least in part on a number of descriptions generated for each of a plurality of different portions of the signal.

13. The apparatus of claim 12 wherein the multiple description coder comprises a multiple description coder configured to implement multiple description scalar quantization (MDSQ).

14. The apparatus of claim 12 wherein the multiple description coder comprises a multiple description adaptive differential pulse code modulation (ADPCM) coder.

15. The apparatus of claim 12 wherein each of the portions of the signal correspond to a designated segment of the signal having a particular time duration.

16. The apparatus of claim 12 wherein the signal comprises a speech signal.

17. The apparatus of claim 12 wherein the wireless communication system comprises a cordless telephone system.

18. The apparatus of claim 12 wherein the frequency hopping modulator is configured such that each of the packets is transmitted using a different frequency.

19. The apparatus of claim 12 wherein the hopping rate of the frequency hopping modulator is selected as twice a frequency hopping rate of the modulator used for transmission of a single description of the given portion of the signal.

20. The apparatus of claim 12 wherein a packet size for the first and second packets is selected as one-half a packet size used for transmission of a single description of the given portion of the signal.

21. The apparatus of claim 12 wherein the multiple description coder generates two descriptions for each of a plurality of different portions of the signal, with a first one of the descriptions for a current one of the portions of the signal being placed in a current packet along with a second one of the descriptions for a previous portion of the signal.

22. The apparatus of claim 12 wherein the hopping rate of the frequency hopping modulator is selected such that a transmission delay of the system is not increased as a result of the transmission of the plurality of descriptions relative to a transmission delay of the system for single description transmission.